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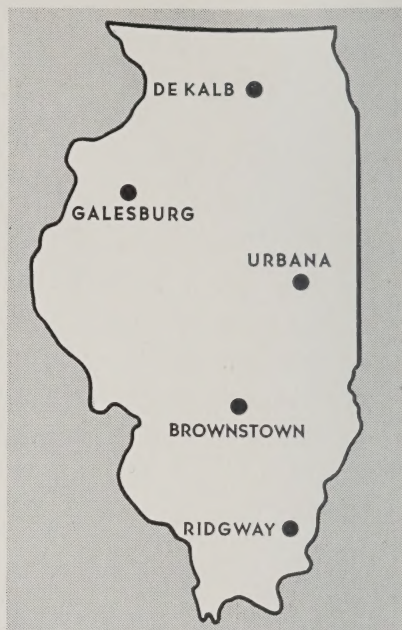
1952 ILLINOIS CORN TESTS

Variety performance
Seed treatment
Rate of planting

Bulletin
564

UNIVERSITY OF ILLINOIS
AGRICULTURAL EXPERIMENT STATION in cooperation with
ILLINOIS STATE NATURAL HISTORY SURVEY . . . January, 1953

Location of 1952 test fields



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1952 ILLINOIS CORN TESTS

J. W. PENDLETON, G. H. DUNGAN, BENJAMIN KOEHLER,
J. H. BIGGER, A. L. LANG, and P. E. JOHNSON¹

ILLINOIS harvested the second largest corn crop in its history in 1952. Total production was about 517 million bushels, and the average state-wide yield was estimated at 58 bushels an acre. This is 3 bushels an acre above the 1951 average and 6½ bushels above the 1942-1951 ten-year average.² The only previous year when both total yield and yield per acre were higher was in 1948.

A new record for early harvest was probably set in 1952. Picking began in September and was virtually completed in October. The quality of corn throughout central and northern Illinois was excellent.

PLAN OF THE TESTS

Number of hybrids and their sources. Two hundred forty-two hybrids were grown on five regular test fields. Nine single-cross hybrids were grown on three special test fields which differed in productivity. Forty-three companies and individuals and the Illinois Station furnished seed for the tests.

Eighty-one hybrids were grown at Galesburg, Urbana, and Brownstown. Seventy-five entries were tested at DeKalb and 60 at Ridgway (Table 1, page 4).

A representative of the Illinois Station or of the Illinois Crop Improvement Association collected seed for planting the test fields directly from the warehouses of the producers entering the corn. Seed of Illinois and U. S. hybrids in commercial production was obtained from the producers of these hybrids and also from the Illinois Seed Producers Association.³

¹ J. W. PENDLETON, First Assistant in Crop Production; G. H. DUNGAN, Professor of Crop Production; BENJAMIN KOEHLER, Professor of Crop Pathology; A. L. LANG, Professor of Soil Fertility; P. E. JOHNSON, Assistant Professor of Soil Fertility; J. H. BIGGER, Entomologist, Illinois State Natural History Survey. ² Estimates of the average yield for the state were furnished by the ILLINOIS COOPERATIVE CROP REPORTING SERVICE, Illinois State Department of Agriculture cooperating with the U. S. Department of Agriculture. ³ Hybrids supplied by the Illinois Seed Producers Association were single crosses used in the Soil Adaptation test.

Table 1. — GENERAL INFORMATION: Illinois Cooperative
Hybrid Corn Tests, 1952

Field, county, location and number of entries	Date planted	Date harvested	Average acre- yield	Moisture in grain	Erect plants	Stand
			<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>
DeKalb: DeKalb N 75.....	May 20	Oct. 20	112.1	23.1	95	89
Galesburg: Knox WNC 81.....	May 15	Oct. 15	104.1	19.8	97	90
Urbana: Champaign C 81.....	May 30	Oct. 23	105.4	20.1	97	93
Brownstown: Fayette S 81.....	May 21	Oct. 24	79.9	15.9	90	94
Ridgway: Gallatin Ex.S 60.....	May 22	Oct. 30	25.7	14.8	97	84

COOPERATORS: RALPH ANDERSON, *Knox county*; JOHN MCGUIRE, *Gallatin county*. Fields in *DeKalb*, *Champaign*, and *Fayette counties* were located on University farms managed by R. E. BELL and C. H. FARNHAM.

Selection of entries. Each year seed corn producers are given an opportunity to nominate hybrids for testing on the various fields. For some fields the number of hybrids nominated is so great that they cannot all be tested. For these fields selection is based partly on the quantity of the hybrid that is produced and partly on the area where it is sold.

A number of promising experimental hybrids are also included in the tests. Other hybrids are grown to meet the field-performance requirement for certification. Generally six Station-produced open-pedigree hybrids are included at each location. The 1952 performance of additional experimental hybrids is reported in Illinois Bulletin 563.

Soil characteristics of fields. The test fields are usually medium to high in productivity, and each represents a soil type common to the region where it is located. Each field is selected for uniformity in soil type, productivity, and drainage. Approximate locations of test fields are shown in map on inside front cover. Soil characteristics and management are described in Table 2.

Field-plot design. A 9 x 9 randomized, lattice-square field-plot design with 5 replications was used on the Galesburg, Urbana, and Brownstown fields. Controlled, randomized block designs were used at the other locations.

Method of planting. All test fields were planted by hand on land prepared in the regular way for corn. Individual plots consisted of 2 rows 5 hills long. Three kernels were planted to the hill at all locations.

Table 2.—TESTING FIELDS: Soil Characteristics
and Management Practices

Soil type	Lime require- ment	Available phosphorus	Available potassium	Previous crops and soil management
NORTHERN: DeKalb				
Flanagan silt loam . . .	2	High	High	Clover 1948; corn 1949; oats 1950; clover 1951; 300 pounds 8-8-8 plowed down; 300 pounds 3-12-12 plowed down; 200 pounds ammonium nitrate side-dressed at second cultivation; rock phosphate applied in 1950; limestone applied in 1937.
WEST NORTH-CENTRAL: Galesburg				
Muscatine silt loam . .	0	Medium	Very high	Corn 1948, 1949; oats 1950; alfalfa-brome hog pasture 1951; rock phosphate and limestone applied in 1946.
CENTRAL: Urbana				
Catlin silt loam	1	High	Very high	Corn 1948; oats 1949; clover 1950; wheat (clover) 1951; rock phosphate and limestone applied in past.
SOUTHERN: Brownstown				
Cisne silt loam	2	Medium	Very high	Waste land 1942-46; soybeans 1947, 1948; wheat (clover) 1949; corn 1950; oats (clover) 1951; 300 pounds muriate potash broadcast before corn planting; 200 pounds ammonium nitrate side-dressed at second cultivation; rock phosphate and limestone applied in 1947.
EXTREME SOUTHERN: Ridgway				
Starks silt loam	2	Medium	Medium	Corn 1948; wheat 1949; clover 1950; corn 1951; 200 pounds 3-12-12 applied in row at planting time; rock phosphate and limestone applied in 1940.

The soil type designations for all fields have been approved by HERMAN WASCHER, Assistant Professor of Soil Physics.

GROWING CONDITIONS

In central and northern Illinois the 1952 growing season was generally favorable. The corn crop in northern Illinois was perhaps the largest it has ever been. Moisture was generally sufficient in the central and northern parts of the state, but parts of southern Illinois suffered from a severe drouth.

Seedbeds and stands were excellent at all fields except Ridgway. There the stand was below normal because the soil was wet at planting time and crows destroyed some plants.

Except at Ridgway growth was excellent. Because no soak-

ing rain occurred on this southern field from the date of planting until early September, growth was very poor and there was little or no ear development (Table 9).

There were very few broken stalks on any test field. A light infestation of corn borer and root worm occurred at Brownstown, and a few varieties showed lodging (Table 8).

Ideal drying and harvesting weather characterized the fall, and most fields were harvested in mid-October. The moisture content of the grain was the lowest in several years. Many varieties could have been shelled at harvest and sold as No. 2 grade. The quality of the grain on all fields except Ridgway was excellent.

INSECT DAMAGE

European corn borer.¹ The number of corn borers is again increasing in a large part of the northern half of the state. The weather was fairly favorable to the borer during both June and July, when the first generation was growing, and was also fairly favorable in the northeastern and much of the northwestern portions of the state when the second generation was developing. The fall population for the state as a whole is the same as in 1950, a low year, but in an area north and east of a line running from Kankakee through Bloomington to Rock Island borer numbers are generally larger than they have been at any time since 1949. South of this line there are generally fewer borers than there were in 1950. Apparently drouthy conditions in this area during mid-to-late summer influenced their survival.

Stalk breaking due to borer attack was great enough on only one test field, Brownstown, to make a record of the damage worth while. There breakage below the ear ranged from 1 to 4.3 percent. Twenty-eight hybrids showed no breakage, and many had no significant breakage. Seven, however, had enough breakage for it to be significant, and two others showed significantly more than the average of the field (Table 8).

Southern corn rootworm.² Though lodging that resulted from the damage by southern corn rootworms was widespread in

¹ *Pyrausta nubilalis* (Hbn.)

² *Diabrotica duodecimpunctata* (F.).

the state in 1952, only on the Brownstown test field was it great enough to warrant record taking. On this field lodging ranged from 0 to 29.6 percent. The average for the field was 3.5 percent; 38 hybrids showed no lodging. A few hybrids were conspicuously poorer than the others in the field (Table 8).

Chinch bug.¹ The chinch bug is staging a comeback. In 1952 losses of a few acres of corn per field were recorded in areas of central and eastern Illinois. Prompt control measures prevented greater losses. The prospect for 1953 is for increased abundance of chinch bugs in the central, eastern, and southwestern counties.

White grub.² A species of white grub known as *Phyllophaga rugosa* Melsh. has been increasing in numbers and range during the past fifteen years. This insect attacks both soybeans and corn. It is periodic in its appearance and may be expected to cause damage in an area extending from Champaign county to Knox county in 1953. The greatest losses are almost certain to be in soybeans and corn in fields where soybeans were grown in 1952, the year when the adults (May beetles) were laying eggs.

SEED TREATMENT AND DISEASE DAMAGE³

Seedling blights. Tests of chemical seed protectants and disinfectants for controlling seedling diseases have been conducted at the Illinois Station each year since 1923. The first chemicals were of only limited value, but from time to time better ones have been found. In the last three years the increases in yield from the treatment now in widest use have been 7.6, 10.2, and 8.6 percent, respectively, in Station experiments. As practically all seed corn now planted in Illinois is treated, this means an annual addition of about 42 million bushels to the Illinois corn crop. The three-year average value of this increase has been about 64 million dollars.

The 1952 seed-treatment tests consisted of two plantings made on different dates and placed side by side on the Station

¹ *Blissus leucopterus* (Say.). ² *Phyllophaga* spp.

³ Data on disease prevalence and estimates of losses are based in part on surveys made by G. H. Boewe, Assistant Plant Pathologist, Illinois State Natural History Survey.

farm at Urbana. The soil was of the same kind and had the same previous cropping history. The seed consisted of three hybrids — Illinois 972 and 1337 and U. S. 13 — each grown and processed (except for seed treatment) by a different producer. Each seed treatment was replicated five times for each hybrid at each date of planting. All treatments except Vancide were applied as a slurry that included 2.5 percent Methocel sticker; grain could thus be handled without loss of any of the chemical. Vancide, a liquid, was used as it came, without dilution. Soon after the first planting prolonged wet weather developed. The second planting was made as soon as the ground could be worked again. The planting rate was 12,000 kernels to the acre. From the 1952 and other recent tests, the following conclusions can be drawn:

1. The treating of seed corn with the best chemicals developed for the purpose is of enormous value to the state as a whole and of potential benefit to every corn grower. The seeds are protected from fungi that are in the soil and would otherwise enter through broken places in the pericarp, causing the seedlings to blight. Such pericarp damage, often almost microscopic but nevertheless important, results primarily from the mechanical picking and processing of seed corn.

2. Some new chemicals look very promising (Table 3) and may become competitive with Arasan (thiram). No chemicals in Station tests as yet, however, appear to be consistently superior to this well-known product when the yields obtained by its use are considered. (Since the patent rights on thiram as a seed treatment have expired, several manufacturers are openly competing in its manufacture.)

3. None of the seed treatments now recommended for corn and none of the favorable looking new ones contain mercury. Within limits those now recommended can be used without harm and may sometimes be beneficial at dosages higher than those prescribed by the manufacturer. An overdose of the seed treatments recommended for small grains, however, may cause injury, for among small grains there is very little margin between a dosage that is enough for disease control and an amount that will cause some damage to the seed.

Table 3. — SEED TREATMENT: Increases in Stands and Acre Yields
From Treatment With Chemical Protectants

(Average of three hybrids, Urbana, 1952)

Treatment	Rate per bushel	Field stand	Acre yield		
Planted May 5, emerged 14 days later					
	oz.	perct.	difference	bu.	difference
None (check).....	..	81.3	...	85.2	...
Arasan SF-X ^a	½	92.1	10.8	94.2	9.0
Spergon DDT-SL ^b	½	87.3	6.0	88.9	3.7
C & C 5400 ^c	½	88.6	7.3	93.2	8.0
C & C 5400 ^c	1	89.9	8.6	94.7	9.5
Orthocide 406 ^d	½	88.4	7.1	90.5	5.3
Orthocide 406 ^d	1	90.2	8.9	92.4	7.2
Vancide 51 ^e	2	84.5	3.2	89.3	4.1
Vancide 51 ^e	4	87.4	6.1	88.7	3.5
Difference necessary for significance.....	..	4.0	4.0	5.3	5.3
Planted June 2, emerged 6 days later					
	oz.	perct.	difference	bu.	difference
None (check).....	..	76.4	...	80.8	...
Arasan SF-X.....	½	84.6	8.2	87.4	6.6
Spergon DDT-SL.....	½	87.5	11.1	87.2	6.4
C & C 5400.....	½	83.5	7.1	84.7	3.9
C & C 5400.....	1	84.1	7.7	87.3	6.5
Orthocide 406.....	½	87.3	10.9	86.7	5.9
Orthocide 406.....	1	87.3	10.9	90.6	9.8
Vancide 51.....	2	79.5	3.1	83.1	2.3
Vancide 51.....	4	81.1	4.7	83.7	2.9
Difference necessary for significance.....	..	4.4	4.4	4.8	4.8

^a Arasan SF-X. Active ingredient 75 percent thiram (tetramethylthiuramdisulfide). The SF indicates that it is suitable for slurry use and the X that it is less dusty than previous formulas. E. I. du Pont de Nemours & Company, Wilmington, Delaware. ^b Spergon DDT-SL. Active ingredient 92 percent chloranil (tetrachloropara-benzoquinone) plus 3 percent DDT. The SL indicates that the formula is suitable for slurry use. United States Rubber Company, Nautauk Chemical Division, Rockefeller Center, New York 20, New York. ^c C & C 5400 (experimental). Active ingredient 100 percent dimethyl dithiocarbamate-sulfur dichloride. Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York 17, New York. ^d Orthocide 406. Active ingredient 50 percent N-trichloromethylthio tetrahydrophthalimide. California Spray Chemical Corporation, Richmond, California and Elizabeth, New Jersey. ^e Vancide 51. Active ingredient 30 percent sodium salts of dimethyl dithiocarbamic acid and 2-mercaptobenzothiazole dissolved in water. R. T. Vanderbilt Company, Inc., 230 Park Avenue, New York 17, New York.

4. Ordinarily corn planted early when the soil is cold derives more benefit from seed treatment than corn planted later when the soil is warm. In 1952, however, just as good results were obtained from treatment in the June 2 plantings, which came up in 6 days, as from plantings made a month earlier, which did not emerge for two weeks. What happened is that soon after the first planting the soil became wet for considerable time. The later planting was made as soon as the soil could be reworked.

A somewhat similar condition occurred in 1946, when the soil was wet throughout May and the seed for the treatment test could not be planted until June 3. The seedlings emerged in 6

days, indicating that the soil was fairly warm. Regardless of late planting that year, remarkable increases in yield from treatment were obtained.

From the results in 1946 and 1952 it appears that in a prolonged wet period certain fungi that cause corn seedling blight multiply, and if corn is planted soon afterward these fungi may cause severe injury to germinating untreated seed even though the planting is late.

5. In Station tests made in the cold chamber at 50° F. Arasan has always given better results than Spergon. The same has been true in field tests in which seedling emergence has been delayed more than a week because of cool temperatures. But in the somewhat warmer soil in which corn is generally planted in southern and central Illinois, these two protectants have given nearly equal results (Table 3, second planting).

Stewart's disease. Leaf blight in field corn from Stewart's disease was most in evidence in south-central Illinois. Some fields with up to a 50-percent loss of leaf area were observed in early September in Macoupin, St. Clair, and Effingham counties, and damage probably occurred elsewhere in that general area. Evidences of this disease diminished northward until only traces were found in the northernmost counties of the state.

Northern leaf blight. A light infection of northern leaf blight caused by *Helminthosporium turcicum* occurred throughout the state and increased in prevalence toward the end of the season. Except for moderate damage in localized areas in west-central Illinois, it was of no importance.

Stalk rots. On the whole, damage from stalk rots was less than it had been for several years. The percent of infected stalks was not only lower, but the stalks that were infected usually remained standing. There were, however, some exceptions; in fact, 40 percent of the stalks in a large field in Champaign county were broken. Of the two most important stalk rot fungi, *Diplodia zeae* caused nearly twice as much premature dying of plants as *Gibberella zeae*.

Two other stalk rots, usually of very little importance in Illinois, were more prevalent than usual. The first one to appear

was in early July. The cause of the disease that produced the symptoms is in doubt because the disease has been described both as bacterial rot and as a *Pythium* (fungus) rot. A number of occurrences were observed in southern Illinois and one as far north as Grundy county. Of four fields studied, *Pythium* was readily isolated from the stalks in two fields but could not be recovered from the stalks of the other two. Bacteria were abundant in all the stalks tested. The external symptoms were the same in all cases: the stalks rotted near the bottom and fell over while still green. After they fell they retained their green color for some days. The rotted part was dark, not usually more than 3 to 6 inches long, and was usually twisted after the plant had fallen (Fig. 1).

Charcoal rot is the other stalk rot that was more common than usual in 1952 (Fig. 1). It is caused by the fungus *Sclerotium bataticola* and is usually associated with hot dry weather.



Two cornstalk rot diseases were more common than usual in 1952. Both diseases are somewhat limited to hot seasons. *Left*: two stalks from Jackson county that rotted in early July, *Pythium butleri* occurring in the rotted areas. *Right*: charcoal rot, frequently found in south-central Illinois. This picture, taken September 15, shows dead vascular bundles, greatly enlarged, a short distance above the soil level. The pith has rotted and disappeared and the causal fungus, *Sclerotium bataticola*, has produced the sclerotia, very tiny black bodies just visible to the naked eye. The disease is readily identified by these bodies. (Fig. 1)

It was most abundant in southern Illinois but was found as far north as Bureau county.

Ear rots. Samples of shelled corn of all the entries in each of the five test fields were sorted for kernel rot discolorations, and the discolored kernels were tested to determine the fungi involved. Rot damage was low in the samples from all fields except Ridgway (Table 4). In that field only a few entries could have

Table 4. — EAR ROT DAMAGE CAUSED BY FUNGI: Average of All Entries on Five Test Fields, 1952

Rank	Fungi causing rot	Corn kernels damaged by rot					
		DeKalb	Galesburg	Urbana	Brownstown	Ridgway	Average
		perct.	perct.	perct.	perct.	perct.	perct.
1	<i>Fusarium moniliforme</i>.....	.16	1.18	.71	.69	3.18	1.18
2	<i>Penicillium</i> species.....	.13	.88	.40	.19	1.44	.61
3	<i>Mucoraceous</i> species.....	0	.14	.14	.06	.42	.15
4	<i>Diplodia zeae</i>.....	.13	.11	.17	.02	.05	.10
5	<i>Gibberella zeae</i>.....	.10	.09	.02	.01	0	.04
	Miscellaneous.....	0	.14	.11	.10	.93 ^a	.26
	Total.....	.52	2.54	1.55	1.07	6.02	2.34

^a Primarily *Aspergillus niger* and *A. flavus*.

graded as good as No. 2, because of rot damage. *Fusarium moniliforme* rot was the most prevalent in all test fields. The amount of *Diplodia zeae* rot was exceptionally low.

Rust and smut. The dry weather was very unfavorable for rust infection and little was seen. Damage from smut was estimated as causing 0.4 percent loss in yield, which is less than average.

MEASURING PERFORMANCE

The entries in the 1952 test are listed in the tables in alphabetical order. It is hoped this arrangement will reduce the emphasis often placed on yield alone.

Yield of grain. To determine shelling percentage, all the ears from one replicate of each entry were shelled immediately after harvest. From the well-mixed shelled corn one sample was taken to determine the percentage of moisture at harvest.¹

The total acre-yield was calculated as shelled corn containing 15.5

¹ All moisture determinations were made with a Steinlite moisture tester.

percent moisture, the upper limit allowable in No. 2 corn. The total yield thus obtained for three fields (Galesburg, Urbana, and Brownstown) was adjusted according to the procedure outlined by Cochran for randomized lattice-square designs.¹

Erect plants. The percentage of erect plants in each plot of each entry on each field was estimated at the time of harvest. Lodging may have been due to rootworm damage, weak or rotted roots, corn borer damage, stalk rots, or weak stalks. Stalks broken above the ear were not considered lodged.

Height of ear. Notes on comparative height of ear were taken at harvest time. Each lot of each entry was placed in one of the five following categories: *low*, *mid-low* (midway between low and medium), *medium*, *mid-high* (midway between medium and high), and *high*. Beginning with *low* and continuing progressively to *high*, these terms were assigned numerical values from 1 to 5 to permit the averaging of the plots.

Stand. A count was made in late summer, at all fields, of the number of missing hills and total number of missing plants in each plot of each variety. It is assumed that missing hills were due to some factor other than the hybrid itself. Yields were corrected for missing hills by the following adjustment:

$$\text{Ear weight in field} \times \left(1 + \frac{\text{missing hills}}{\text{hills present}} \times .6 \right) = \text{adjusted ear weight.}$$

The percent stand is based on the total number of missing plants in relation to the number that would have been present if all the kernels had produced plants. Stand differences may be due to poor germination, to disease, insect, or rodent destruction, or in some cases to destruction in cultivation.

Significance of yield differences. Too much confidence must not be placed in small differences between the yields of different hybrids in the following tables, for unaccountable variability in the soil and in conditions on the field will cause differences in yield that are not inherent in the hybrids themselves. The part played by chance in the 1952 tests has been calculated for total yield by the mathematical procedure known as "analysis of variance." In each table is shown the

¹ Cochran, W. G. "Some Additional Lattice-Square Designs." *Iowa Agr. Exp. Sta. Res. Bul.* 318. May, 1943.

approximate difference there must be between any two entries in order for them to show a true inherent difference. Unless two hybrids differ by at least this amount, there is no assurance that one hybrid is inherently higher yielding than the other.

(The differences necessary for significance are calculated on a 5-percent basis, which means that the odds are 19 to 1 against differences as great as or greater than these resulting from mere chance. The differences for seed-corn treatments, resistance to insect damage, and soil and planting-rate adaptation were also calculated on a 5-percent basis.)

RESULTS OF TESTS

Detailed results of tests on five regular test fields and the three special soil-adaptation fields are given in Tables 5 to 9 on the following pages. See also Table 4 on page 12 for ear-rot damage.

Readers are urged to keep in mind these two things when comparing the performance of hybrids on any one field:

1. Small differences in any one year do not necessarily indicate that one hybrid is inherently superior to another. For the amount one hybrid must outyield another before it can be considered better, see the difference-necessary-for-significance figures given at the bottom of these tables.

2. Tests covering three years (see upper part of yield tables) give more reliable results than those covering only one year. The fact that a hybrid does not appear in the summary is, however, nothing against it — its absence merely means that 1952 was the first year it was tested or that it missed one year of the series.

CONTRIBUTORS OF SEED

Ainsworth Hybrids.....	Ainsworth Seed Co.....	Mason City
Appl Hybrids.....	Appl's Hybrid Seed Co.....	St. Joseph
Bear Hybrids.....	Bear Hybrid Corn Co.....	Decatur, Box 628
Canterbury Hybrids.....	C. E. Canterbury Seed Co.....	Cantrall
Crow Hybrids.....	Crow's Hybrid Corn Co.....	Milford
DeKalb Hybrids.....	DeKalb Agricultural Assn.....	DeKalb
Doubet Hybrids.....	E. W. Doubet.....	Hanna City
Embro Hybrids.....	Ed. F. Manglesdorf & Bro., Inc.....	1020 S. 4th St., St. Louis, Mo.
Farmercraft Hybrids.....	Farmercraft Seed Co.....	Oxford, Ind.
Frey Hybrids.....	Frey Hybrid Corn Co.....	Gilman
Funk Hybrids.....	Funk Brothers Seed Co.....	Bloomington
Haudrich Hybrids.....	Haudrich Hybrid Corn Co.....	Belleville
Holmes Hybrids.....	Holmes Hybrids.....	Edelstein
Huebsch Hybrids.....	L. A. Huebsch & Son.....	Mundelein
Huey Hybrids.....	Huey Seed Co.....	Carthage
Illinois Hybrids.....	Ill. 21 (Dittmer Seeds, Carthage; P. A. Stone & Son, Pleasant Plains)	
	Ill. 101 (L. A. Huebsch & Son)	
	Ill. 1091 (Mountjoy Hybrid Seed Co.)	
	Ill. 1091A (Dittmer Seeds)	
	Ill. 1180 (L. A. Huebsch & Son)	
	Ill. 1246 (Mountjoy Hybrid Seed Co.)	
	Ill. 1277, 1279, 1280, 1289 (Ill. Agr. Exp. Sta.)	
	Ill. 1337 (Dittmer Seeds)	
	Ill. 1459, 1540, 1555A (Ill. Agr. Exp. Sta.)	
	Ill. 1559 (Nichols Bros.)	
	Ill. 1570 (Mountjoy Hybrid Seed Co.; P. A. Stone & Son; Ill. Agr. Exp. Sta.)	
	Ill. 1656 (Mountjoy Hybrid Seed Co.)	
	Ill. 1760, 1767, 1772, 1800, 1813, 1814, 1851, 1852, 2214(W), 6016, 6021 (Ill. Agr. Exp. Sta.)	
Keystone Hybrids.....	Corneli Seed Co.....	101 Chouteau Ave., St. Louis, Mo.
Lovell Hybrids.....	Lovell Seed Co.....	Henshaw, Ky.
Lowe Hybrids.....	Lowe Seed Co.....	Aroma Park
Moews Corn Belt Hybrids.....	Moews Corn Belt Co., Inc.....	Boswell, Ind.
Morton Hybrids.....	Roy A. Morton & Sons.....	Bowen
Mountjoy Hybrids.....	Mountjoy Hybrid Seed Co.....	Atlanta
Munson Hybrids.....	Carl Munson.....	Galesburg
National Hybrids.....	National Hybrid Corn Co.....	Normal
Nichols Hybrids.....	Nichols Bros.....	Hebron
Null Hybrids.....	Null Seed Farms.....	Colchester
P.A.G. Hybrids.....	Pfister Assoc. Growers, Inc.....	Aurora
Pioneer Hybrids.....	Pioneer Hi-Bred Corn Co. of Ill.....	Princeton
Plymouth Hybrids.....	Howard E. Huey & Son.....	Camp Point
Powers Hybrids.....	Powers Seed House.....	Brocton
Schwenk Hybrids.....	W. T. Schwenk & Sons.....	Edwards
Sieben Hybrids.....	Sieben Hybrids.....	Geneseo, R. 1
Smiley Hybrids.....	Glenn Smiley.....	Milford
Stewart Hybrids.....	Frank S. Stewart.....	Princeville
Stiegelmeier Hybrids.....	H. L. Stiegelmeier.....	Normal
Super-Crost Hybrids.....	E. J. Funk & Sons.....	Kentland, Ind.
Tiemann Hybrids.....	Tiemann Seed Co.....	Bloomington
Trisler Hybrids.....	J. L. Trisler.....	Fairmount
U.S. Hybrids.....	U.S. 13 (Roy A. Morton & Sons).....	Bowen
Whisnand Hybrids.....	Myron Whisnand.....	Arcola

Table 5. — NORTHERN ILLINOIS: DeKalb

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
SUMMARY 1950-1952: Less than 5.3 bushels difference between total yields of any two entries is not significant.					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Bear OK-411.....	80.0	26.3	96	97	M-low
Illinois 1277 (Station).....	78.8	26.0	97	93	Medium
Pioneer 347.....	77.2	25.1	98	93	Medium
DeKalb 406.....	73.7	23.9	96	92	Medium
DeKalb 410.....	73.3	23.8	96	90	M-low
Funk G-77A.....	73.3	24.6	96	91	M-high
Holmes 11A.....	73.3	24.7	96	95	Medium
P.A.G. 253.....	72.8	25.1	95	93	Medium
Frey 425.....	72.3	27.7	96	93	M-high
Illinois 1091A ^a	72.1	27.1	96	91	M-high
Funk G-16A.....	71.9	26.9	97	91	Medium
P.A.G. 299.....	71.5	26.9	95	90	Medium
Pioneer 349.....	71.2	27.9	97	92	M-low
Ainsworth X-12.....	71.2	27.9	97	92	M-low
National 114-1.....	70.7	24.8	98	93	Medium
Holmes 11.....	70.5	24.9	98	89	Medium
Sieben S-340.....	69.5	28.6	97	93	M-high
Sieben S-450.....	69.3	24.9	95	91	Medium
P.A.G. 270.....	69.2	28.4	97	90	M-high
Lowe 22.....	68.8	29.5	96	90	M-high
Tiemann T-61.....	68.7	26.2	97	94	Medium
Stiegelmeier S-360.....	68.2	28.3	98	93	Medium
Nichols 5B.....	68.2	24.8	95	91	Medium
Illinois 101 ^b	67.6	27.3	96	92	Medium
Nichols 75.....	66.7	24.8	95	92	Low
DeKalb 404A.....	66.5	26.4	96	94	Medium
DeKalb 459.....	65.8	27.4	96	89	Medium
Sieben S-440E.....	65.6	29.7	96	90	Medium
Keystone 32.....	65.6	25.3	96	90	Medium
Crow 432.....	65.0	25.7	96	90	M-low
Lowe 32.....	64.3	21.1	91	92	M-low
Crow 260.....	64.2	25.4	97	88	M-low
Doubet D-1.....	60.4	28.2	98	83	Medium
Lowe 52.....	59.0	22.5	93	86	M-low
Average of all entries.....	69.6	26.0	96	91	.....
1952 RESULTS: Less than 8.4 bushels difference between total yields of any two entries is not significant.					
A.E.S. 702.....	118.4	24.7	96	96	High
Ainsworth X-12.....	120.0	24.0	98	91	Medium
Bear OK-55.....	99.0	32.4	91	90	High
Bear OK-411.....	127.1	24.5	95	99	Medium
Crow 260.....	105.6	21.9	98	88	Medium
Crow 432.....	114.4	23.0	98	97	Medium
DeKalb 404A.....	115.6	22.2	94	97	Medium
DeKalb 406.....	115.8	23.4	94	96	Medium
DeKalb 408.....	112.8	23.2	89	95	Medium
DeKalb 410.....	119.8	21.5	97	98	M-low
DeKalb 459.....	104.5	23.7	95	85	Medium
Doubet D-1.....	85.0	24.8	98	76	M-high
Doubet D-44.....	108.3	24.5	97	95	Medium
Farmcraft FC-40.....	110.9	22.5	95	91	Medium
Farmcraft FC-42.....	110.2	25.4	95	95	M-high
Frey 425.....	111.8	26.5	96	93	M-high

^a Average of Illinois 1091A (Station) 1950, 1951, and Illinois 1091A (Dittmer) 1952.^b Average of Illinois 101 (Station) 1950, 1951, and Illinois 101 (Huebsch) 1952.

(Table is concluded on next page)

Table 5. — NORTHERN ILLINOIS: DeKalb — concluded

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
1952 RESULTS — concluded					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Frey 645.....	121.3	23.6	95	93	High
Funk G-16A.....	120.1	22.9	96	94	M-high
Funk G-77A.....	116.3	22.0	96	94	M-high
Holmes 11.....	117.7	20.7	99	89	Medium
Holmes 11A.....	122.1	20.8	96	95	M-high
Holmes 17.....	121.3	24.0	99	95	Medium
Huebsch 24.....	117.5	21.5	91	96	M-low
Huebsch 44.....	110.3	21.3	93	90	M-low
Huebsch 81.....	121.0	20.5	95	100	Medium
Huey H-23.....	113.4	23.7	94	97	M-high
Illinois 101 (Huebsch).....	106.4	25.0	96	94	Medium
Illinois 1091 (Mountjoy).....	123.7	23.9	96	99	M-high
Illinois 1091A (Dittmer).....	119.1	23.3	98	91	M-high
Illinois 1180 (Huebsch).....	108.4	23.2	92	92	M-low
Illinois 1277 (Station).....	127.1	23.1	98	93	M-high
Illinois 1279 (Station).....	123.3	24.0	96	98	Medium
Illinois 1280 (Station).....	128.2	23.0	95	98	M-high
Illinois 1289 (Station).....	121.6	24.1	97	97	Medium
Illinois 1555A (Station).....	114.6	20.3	98	95	M-high
Illinois 1559 (Nichols).....	107.6	20.7	94	93	M-low
Illinois 1800 (Station).....	103.9	22.7	98	93	M-low
Illinois 1814 (Station).....	117.6	29.4	96	97	Medium
Keystone 32.....	104.9	22.5	96	90	Medium
Keystone 44.....	119.1	24.9	98	96	Medium
Lowe 22.....	100.5	21.9	94	91	Medium
Lowe 32.....	102.9	17.9	87	96	Medium
Lowe 52.....	89.9	18.9	94	78	Medium
Lowe 520.....	109.9	25.0	91	93	High
Moews 80.....	89.8	18.5	96	85	Medium
Moews 85W.....	85.5	18.8	95	87	M-low
Mountjoy M-42.....	101.6	23.9	94	89	Medium
Munson M-1.....	99.8	18.2	96	89	Medium
Munson M-3.....	111.7	21.4	96	89	M-low
National 114-1.....	110.2	22.7	98	96	Medium
National 115A.....	101.4	26.0	96	95	High
Nichols 5B.....	104.5	21.6	94	92	Medium
Nichols 75.....	107.7	23.7	94	95	M-low
Nichols 99.....	104.9	22.0	91	87	Medium
P.A.G. 233.....	112.9	21.2	97	97	M-high
P.A.G. 253.....	120.5	22.4	95	97	Medium
P.A.G. 270.....	111.6	23.6	98	91	Medium
P.A.G. 277.....	123.3	22.3	94	95	Medium
P.A.G. 297.....	107.8	23.0	97	95	M-low
P.A.G. 299.....	120.5	24.2	94	97	Medium
Pioneer 325.....	127.5	24.5	99	99	Medium
Pioneer 337.....	122.2	22.3	98	92	Medium
Pioneer 344.....	117.7	24.7	87	97	M-high
Pioneer 347.....	125.6	21.9	98	99	Medium
Pioneer 349.....	113.4	20.7	98	93	Medium
Pioneer 352.....	114.7	22.6	97	93	M-low
Sieben S-340.....	109.4	25.9	98	99	M-high
Sieben S-440E.....	112.1	24.0	97	93	Medium
Sieben S-450.....	114.2	22.8	91	96	Medium
Sieben S-560.....	111.2	21.6	95	87	Medium
Smiley M-8.....	112.3	29.6	96	93	M-high
Stiegelmeier S-360.....	108.8	23.9	98	92	M-high
Super-Crost 440.....	112.3	24.6	98	92	Medium
Tiemann T-61.....	110.7	23.3	96	95	Medium
Tiemann T-78.....	112.5	24.1	96	90	M-high
Average of all entries.....	112.1	23.1	95	89	.....

Table 6. — WEST NORTH-CENTRAL ILLINOIS: Galesburg

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
SUMMARY 1950-1952: Less than 5.6 bushels difference between total yields of any two entries is not significant.					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Illinois 21 ^a	110.6	21.0	94	90	M-high
Ainsworth X-21.....	110.0	21.2	96	88	M-high
Pioneer 313B.....	110.0	24.6	88	92	M-high
Schwenk S-34.....	109.0	22.2	94	93	M-high
Schwenk S-24.....	107.9	21.8	93	91	M-high
Pioneer 301.....	107.2	21.4	94	92	M-low
Morton M-12.....	106.8	22.4	93	90	M-high
Holmes 39.....	106.4	23.4	93	88	M-high
Illinois 1570 (Station).....	106.2	22.2	92	90	M-high
Illinois 1337 (Dittmer).....	105.6	22.4	94	86	M-high
Morton M-30.....	105.4	21.1	95	88	Medium
Munson M-13.....	105.2	22.6	94	90	High
Bear OK-55.....	104.6	25.9	95	91	High
Ainsworth X-13-3.....	104.4	21.9	96	87	High
Plymouth 38.....	104.3	22.1	94	86	High
Huey H-23.....	104.1	21.8	94	88	Medium
Huey H-42.....	103.7	20.7	94	88	M-high
Sieben S-340.....	101.9	19.9	94	91	Medium
Stiegelmeier S-379.....	101.9	20.6	95	86	Medium
U.S. 13 ^b	101.8	24.1	92	92	M-high
Lowe 514.....	101.5	22.4	92	90	Medium
DeKalb 627.....	101.1	20.0	87	84	M-low
Holmes 19A.....	101.1	21.2	93	88	Medium
P.A.G. 170.....	100.5	21.3	93	86	Medium
P.A.G. 392.....	100.2	19.4	93	88	Medium
Lowe 520.....	99.9	23.8	93	89	High
Funk G-93.....	99.8	21.1	96	86	M-high
Funk G-77A.....	99.6	19.6	95	83	Medium
DeKalb 628A.....	98.8	23.1	91	89	M-high
P.A.G. 347.....	98.8	19.0	92	90	Medium
Sieben S-440.....	94.0	18.4	93	81	M-low
Average of all entries.....	103.6	21.7	93	88	.....
1952 RESULTS: Less than 11.6 bushels difference between total yields of any two entries is not significant.					
A.E.S. 702.....	105.0	19.1	98	95	M-high
A.E.S. 805.....	91.6	21.7	94	92	Medium
Ainsworth X-13-3.....	106.5	20.0	98	89	High
Ainsworth X-14-3.....	110.1	21.0	98	87	M-high
Ainsworth X-21.....	120.4	18.8	98	92	M-high
Appl 130A.....	111.6	19.2	96	91	M-high
Appl 159A.....	107.7	21.7	95	92	M-high
Bear OK-24.....	110.6	21.9	97	90	M-high
Bear OK-31.....	98.1	19.8	97	86	M-low
Bear OK-55.....	100.2	23.7	98	95	High
Crow 407.....	112.1	19.1	97	95	M-low
Crow 608.....	105.2	18.6	91	91	Medium
DeKalb 627.....	105.6	17.8	98	85	M-low
DeKalb 628A.....	106.1	20.9	97	90	M-high
DeKalb 800A.....	113.8	19.1	95	92	M-high
DeKalb 847.....	109.8	19.3	98	90	Medium
DeKalb 850.....	112.8	18.6	92	88	M-high
Doubet D-25.....	100.4	21.0	97	93	M-high
Doubet D-41.....	85.9	20.2	93	71	High
Doubet D-43.....	107.1	19.1	98	87	M-high
Frey 425.....	95.3	19.6	98	96	M-low

^a Average of Illinois 21 (Station) 1950, 1951; Illinois 21 (Dittmer) 1952.^b Average of U.S. 13 (Station) 1950, 1951; U.S. 13 (Morton) 1952.

(Table is concluded on next page)

Table 6. — WEST NORTH-CENTRAL ILLINOIS:
Galesburg — concluded

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
1952 RESULTS — concluded					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Frey 645.....	101.3	19.1	96	88	Medium
Funk G-77A.....	102.2	18.5	97	89	Medium
Funk G-91.....	103.7	21.0	96	86	M-high
Funk G-93.....	93.1	19.1	96	90	M-high
Funk G-95.....	107.4	20.3	96	82	M-high
Funk G-99.....	101.9	20.3	96	79	High
Holmes 13.....	94.6	21.6	98	87	M-high
Holmes 19A.....	108.3	18.9	98	89	Medium
Holmes 39.....	107.9	21.2	95	86	M-high
Huey H-23.....	103.6	20.2	98	89	M-high
Huey H-42.....	101.1	20.7	93	90	M-high
Huey H-235.....	100.6	19.5	98	89	M-high
Illinois 21 (Dittmer).....	113.4	19.1	98	89	Medium
Illinois 1091 (Mountjoy).....	104.1	19.7	98	90	Medium
Illinois 1337 (Dittmer).....	110.0	19.9	97	90	M-high
Illinois 1570 (Station).....	111.2	20.1	95	93	M-high
Illinois 1760 (Station).....	105.6	22.4	96	93	M-high
Illinois 1813 (Station).....	102.1	21.8	97	91	M-high
Keystone 48.....	101.7	20.0	96	91	M-low
Lowe 444.....	91.8	18.2	98	83	M-low
Lowe 514.....	104.9	20.4	96	90	Medium
Lowe 520.....	95.8	19.3	97	90	M-high
Morton M-12.....	106.6	20.3	95	88	M-high
Morton M-30.....	107.1	19.1	99	89	Medium
Morton M-70.....	106.8	20.3	97	90	M-high
Munson M-5.....	108.3	20.7	96	89	M-low
Munson M-13.....	107.6	19.2	96	92	High
Munson M-77.....	99.6	20.7	97	93	Medium
Null N-68.....	98.1	21.1	97	89	Medium
P.A.G. 170.....	97.7	18.9	96	81	Medium
P.A.G. 303.....	114.1	19.9	97	99	Low
P.A.G. 347.....	104.2	18.0	95	93	Medium
P.A.G. 381.....	110.2	18.6	97	91	Medium
P.A.G. 383.....	96.9	17.9	95	87	M-low
P.A.G. 392.....	103.8	18.6	98	91	Medium
Pioneer 301.....	107.0	18.6	98	95	Low
Pioneer 313B.....	121.8	20.5	93	89	M-high
Pioneer 335.....	109.3	18.8	96	91	M-low
Pioneer 338.....	101.3	20.4	92	85	M-low
Pioneer 4117.....	106.6	18.8	99	90	Medium
Pioneer 9781.....	112.5	19.8	96	94	Medium
Plymouth 37.....	105.2	20.3	99	89	M-high
Plymouth 38.....	109.2	20.4	98	87	High
Schwenk S-24.....	114.1	19.9	97	95	M-high
Schwenk S-34.....	112.6	19.9	95	95	M-high
Sieben S-340.....	106.2	17.9	97	95	Medium
Sieben S-440.....	94.7	16.0	95	77	M-low
Sieben S-560.....	98.0	19.4	98	90	Low
Smiley M-8.....	99.4	20.0	99	88	Medium
Stewart S-51.....	98.5	20.2	97	95	M-high
Stewart S-56.....	93.2	21.2	97	89	Medium
Stiegelmeier S-379.....	82.0	19.5	99	81	M-low
Stiegelmeier S-400.....	98.7	19.9	97	97	Medium
Tiemann T-61.....	98.8	18.7	95	93	Low
Tiemann T-72.....	96.6	18.9	95	89	M-high
Trisler T-19B.....	101.4	19.2	97	91	M-low
Trisler T-32B.....	96.3	20.5	97	89	Medium
U.S. 13 (Morton).....	109.4	21.0	96	94	M-high
Whisnand 804.....	106.2	20.1	98	95	M-high
Whisnand 810.....	108.9	20.9	96	94	High
Average of all entries.....	104.1	19.8	97	90 ¹⁷	.....

Table 7. — CENTRAL ILLINOIS: Sullivan 1950, 1951; Urbana 1952

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
SUMMARY 1950-1952: Less than 5.4 bushels difference between total yields of any two entries is not significant.					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Pioneer 302.....	105.1	22.7	70	95	M-high
U.S. 13 ^a	103.2	19.3	58	94	M-high
Ainsworth X-14-3.....	102.8	19.5	64	93	Medium
Pioneer 301.....	101.5	19.1	58	92	M-low
Whisnand 804.....	100.8	20.3	69	94	Medium
Ainsworth X-13-3.....	100.3	19.8	62	94	M-high
Pioneer 313B.....	100.2	21.3	52	95	Medium
Funk G-99.....	99.8	21.4	59	93	M-high
P.A.G. 173.....	99.7	19.4	65	93	M-high
Trisler T-32.....	99.0	18.9	63	90	M-high
Illinois 21 ^b	98.9	19.7	67	93	Medium
Illinois 1570 ^c	98.8	19.6	64	94	Medium
Canterbury 404.....	98.8	19.5	64	92	Medium
Ainsworth X-21.....	98.3	19.7	61	95	M-high
Canterbury 420.....	97.9	19.5	69	94	Medium
Doubet D-41.....	97.9	20.3	62	92	M-high
Morton M-12.....	97.7	20.2	58	93	M-high
Morton M-30.....	97.3	19.1	59	94	Medium
Crow 805.....	96.6	18.5	68	93	M-high
P.A.G. 170.....	96.2	19.9	52	92	Medium
P.A.G. 392.....	96.1	18.7	64	92	Medium
Lowe 523.....	95.8	20.0	59	94	Medium
DeKalb 875.....	95.1	20.2	65	95	Medium
Lowe 514.....	93.4	19.1	56	91	Medium
Lowe 520.....	91.3	20.2	56	94	M-high
Average of all entries.....	98.5	19.8	62	93	.....
1952 RESULTS: Less than 10.6 bushels difference between total yields of any two entries is not significant.					
A.E.S. 805.....	109.0	21.8	98	98	Medium
Ainsworth X-13-3.....	109.0	19.9	97	95	High
Ainsworth X-14-3.....	109.8	19.2	95	96	M-high
Ainsworth X-21.....	110.8	20.0	96	98	M-high
Appl 130A.....	108.5	19.5	98	86	M-high
Appl 159A.....	113.9	21.9	99	95	M-high
Bear OK-32.....	107.8	21.0	98	85	M-high
Bear OK-50.....	110.2	20.9	98	94	M-high
Bear OK-89.....	92.3	22.0	98	92	High
Bear OK-625.....	103.1	22.2	99	98	M-high
Canterbury 400.....	109.1	19.5	98	88	M-high
Canterbury 404.....	99.7	18.4	99	87	M-high
Canterbury 420.....	104.9	19.8	97	93	M-high
Crow 608.....	112.0	18.9	97	93	Medium
Crow 805.....	104.5	17.0	97	93	M-high
DeKalb 628A.....	105.7	20.1	96	93	M-high
DeKalb 800A.....	111.0	19.1	97	91	M-high
DeKalb 840.....	99.1	22.6	95	95	M-low
DeKalb 847.....	102.1	19.7	99	96	Medium
DeKalb 850.....	98.3	20.1	97	93	Medium
DeKalb 875.....	104.5	20.7	96	95	Medium
Doubet D-25.....	98.8	21.0	98	93	M-low
Doubet D-41.....	98.6	20.2	95	88	M-high
Doubet D-43.....	114.6	19.9	99	96	Medium

^a Average of U.S. 13 (Station) 1950, 1951, and U.S. 13 (Morton) 1952.^b Average of Illinois 21 (Powers) 1950, and Illinois 21 (Stone) 1951, 1952.^c Average of Illinois 1570 (Station) 1950, and Illinois 1570 (Stone) 1951, 1952.

(Table is concluded on next page)

Table 7.—CENTRAL ILLINOIS: Urbana—concluded

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
1952 RESULTS—concluded					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Frey 645.....	115.8	19.1	98	94	M-high
Frey 692.....	92.9	19.0	98	94	Medium
Funk G-77A.....	103.9	17.5	97	93	Medium
Funk G-91.....	108.2	21.3	97	93	High
Funk G-93.....	91.9	20.5	98	90	M-high
Funk G-95.....	114.1	19.0	98	91	M-high
Funk G-99.....	102.3	20.8	97	89	M-high
Holmes 13.....	109.3	20.7	99	93	M-high
Holmes 39.....	108.1	22.2	91	93	Medium
Huey H-23.....	104.8	18.6	97	85	M-high
Illinois 21 (Stone).....	107.9	19.9	98	91	Medium
Illinois 1246 (Mountjoy).....	111.1	18.3	98	97	Medium
Illinois 1570 (Stone).....	104.5	19.9	96	93	M-high
Illinois 1760 (Station).....	105.3	20.6	98	99	M-high
Illinois 1767 (Station).....	111.2	20.9	99	94	M-high
Illinois 6016 (Station).....	95.8	21.8	96	84	High
Illinois 6021 (Station).....	91.7	22.4	93	91	High
Keystone 48.....	105.0	19.3	95	93	Medium
Keystone 49.....	96.6	21.7	98	90	Medium
Lowe 505.....	102.4	21.4	98	93	Medium
Lowe 514.....	98.5	17.3	95	89	Medium
Lowe 520.....	98.9	20.5	99	94	M-high
Lowe 523.....	107.3	18.9	98	95	M-high
Morton M-12.....	100.4	21.3	97	94	M-high
Morton M-30.....	110.0	17.7	95	96	Medium
Morton M-70.....	110.7	19.7	97	97	M-high
Mountjoy M-64.....	107.9	18.9	97	93	M-low
Munson M-13.....	109.0	19.7	99	83	M-high
Munson M-77.....	94.5	19.4	98	95	Medium
Munson M-119.....	110.9	21.2	99	93	M-high
P.A.G. 164.....	117.9	18.1	99	86	Medium
P.A.G. 170.....	103.0	20.9	98	87	Medium
P.A.G. 173.....	113.8	19.4	97	95	M-high
P.A.G. 347.....	104.6	19.9	97	92	M-low
P.A.G. 383.....	97.8	19.5	97	89	M-low
P.A.G. 392.....	101.3	19.3	99	89	Medium
Pioneer 301.....	100.5	17.2	98	87	Low
Pioneer 302.....	111.7	23.5	97	93	M-high
Pioneer 313B.....	112.3	21.1	91	98	Medium
Pioneer 338.....	104.1	18.9	95	95	Low
Pioneer 4117.....	107.8	19.3	94	92	M-low
Pioneer 6063.....	115.2	19.8	97	94	M-low
Plymouth 37.....	106.2	18.5	97	92	Medium
Powers 69.....	107.1	20.5	96	96	Medium
Schwenk S-24.....	116.4	21.6	96	98	High
Schwenk S-34.....	110.5	19.6	96	85	M-high
Stiegelmeier S-379.....	93.3	21.2	97	93	M-low
Stiegelmeier S-400.....	93.1	21.6	97	95	M-low
Tiemann T-61.....	100.2	19.2	97	94	M-low
Tiemann T-72.....	110.0	19.1	98	97	M-high
Trisler T-19B.....	102.5	18.6	97	95	M-low
Trisler T-32.....	97.1	19.5	98	85	M-high
Trisler T-32B.....	103.9	21.6	99	93	Medium
Trisler T-33B.....	109.2	20.6	98	95	Medium
U.S. 13 (Morton).....	117.6	19.4	95	97	M-high
Whisnand 804.....	106.0	21.6	98	94	M-high
Whisnand 810.....	107.8	21.5	97	91	High
Average of all entries.....	105.4	20.1	97	93	

Table 8. — SOUTHERN ILLINOIS: Brownstown

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear	Insect resistance	
						Corn borer, plants broken be- low ear ^a	Corn root- worm, plants leaning 30 de- grees or more ^b
SUMMARY 1950-1952: Less than 4.8 bushels difference between total yields of any two entries is not significant.							
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>		<i>perct.</i>	<i>perct.</i>
P.A.G. 620(W).....	88.8	19.8	77	90	M-high	...	...
Illinois 2214(W) (Station)	88.5	20.9	77	89	M-high	...	...
Pioneer 302.....	87.8	20.0	86	91	M-high	...	...
Funk G-91.....	87.2	18.7	86	90	Medium	...	...
Illinois 1459 (Station).....	87.1	20.9	85	93	High	...	...
Funk G-134.....	86.2	20.1	81	92	Medium	...	...
P.A.G. 631(W).....	84.4	21.8	73	90	M-high	...	...
Illinois 1570 ^c	84.0	17.8	79	90	Medium	...	...
Ainsworth X-14-3.....	83.1	17.4	83	92	Medium	...	...
Ainsworth X-14A.....	81.9	19.4	81	94	M-high	...	...
Keystone 111(W).....	81.9	21.5	84	88	M-high	...	...
Lowe 820.....	81.8	19.5	86	90	M-high	...	...
Funk G-80.....	81.7	20.5	79	92	Medium	...	...
Canterbury 126.....	80.5	18.4	79	93	Medium	...	...
Whisnand 917(W).....	80.1	19.8	83	89	M-high	...	...
Funk G-98.....	79.4	19.4	81	88	Medium	...	...
Haudrich 13.....	78.1	19.0	85	91	Medium	...	...
Whisnand 834.....	78.0	19.6	83	88	Medium	...	...
Doubet D-41.....	77.7	19.0	82	88	Medium	...	...
P.A.G. 617(W).....	77.5	19.8	77	86	M-high	...	...
Crow 805.....	77.4	17.3	82	88	Medium	...	...
U.S. 13 ^d	76.9	19.4	78	91	M-high	...	...
Average of all entries..	82.3	19.6	81	90	.....	...	...

1952 RESULTS: Less than 6.4 bushels difference between
total yields of any two entries is not significant.

A.E.S. 805.....	84.0	18.3	..	95	Low	0	0
Ainsworth X-13-3.....	83.3	14.9	..	96	M-high	1.4	.7
Ainsworth X-14A.....	76.4	16.6	..	95	M-high	1.4	1.4
Ainsworth X-14-3.....	84.6	14.0	..	98	Medium	.7	4.1
Ainsworth X-21.....	81.2	13.6	..	93	Medium	1.4	2.1
Appl 130A.....	82.4	13.5	..	95	Medium	0	2.1
Appl 159A.....	84.0	15.2	..	93	Medium	0	0
Bear OK-50A.....	88.9	15.7	..	92	M-low	0	0
Bear OK-72B.....	90.3	14.4	..	99	M-high	.7	0
Bear OK-89.....	78.4	15.4	..	95	Medium	0	0
Canterbury 126.....	81.9	13.4	..	95	Medium	1.4	0
Canterbury 400.....	74.5	20.2	..	97	Medium	0	0
Canterbury 420.....	82.7	12.4	..	96	M-low	1.4	0
Crow 805.....	81.0	13.5	..	95	Medium	0	0
Crow 821.....	77.4	14.6	..	93	Medium	.7	9.3
DeKalb 847.....	74.9	14.5	..	94	M-low	.7	2.2
DeKalb 876.....	78.5	16.2	..	97	M-high	0	2.2
DeKalb 894.....	69.0	17.7	..	91	M-high	.7	17.6
DeKalb 898.....	79.4	17.6	..	95	M-high	.7	6.4
DeKalb 923(W).....	62.0	18.6	..	87	Medium	.8	3.9
Doubet D-41.....	74.5	14.8	..	91	Medium	0	2.3
Doubet D-43.....	78.5	16.2	..	93	M-low	0	2.2
Funk G-80.....	69.7	19.1	..	95	Medium	.7	0
Funk G-91.....	87.7	15.9	..	95	Medium	.7	0

^a The difference necessary for significance between hybrids broken by corn borers is 2.3 percent.

^b The difference necessary for significance between hybrids leaning 30 degrees or more is 8.7 percent.

^c Average of Illinois 1570 (Station) 1950, 1951, and Illinois 1570 (Mountjoy) 1952.

^d Average of U.S. 13 (Station) 1950, 1951, and U.S. 13 (Morton) 1952.

(Table is concluded on next page)

Table 8. — SOUTHERN ILLINOIS: Brownstown — concluded

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear	Insect resistance	
						Corn borer, plants broken be- low ear ^a	Corn root- worm, plants leaning 30 de- grees or more ^b
1952 RESULTS — concluded							
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>		<i>perct.</i>	<i>perct.</i>
Funk G-98.....	72.3	16.7	..	86	Medium	.8	0
Funk G-134.....	80.0	19.3	..	94	M-high	.7	0
Funk G-779(W).....	76.1	23.7	..	94	High	.7	29.6
Haudrich 10(W).....	74.6	16.1	..	93	High	.7	9.3
Haudrich 13.....	79.8	13.5	..	96	Medium	2.2	0
Haudrich 126.....	82.3	16.1	..	97	M-low	.7	0
Haudrich 784.....	86.3	19.5	..	94	High	1.4	16.2
Illinois 1459 (Station).....	83.1	14.8	..	98	High	.7	4.1
Illinois 1570 (Mountjoy).....	81.2	14.6	..	93	Medium	2.3	0
Illinois 1656 (Mountjoy).....	77.9	14.8	..	91	Medium	.8	0
Illinois 1772 (Station).....	83.2	19.0	..	91	M-high	1.4	6.5
Illinois 1851 (Station).....	91.2	17.0	..	95	M-high	0	.7
Illinois 2214(W) (Station).....	83.6	19.3	..	97	M-high	1.4	.7
Keystone 49.....	76.2	16.2	..	89	M-low	.8	4.6
Keystone 111(W).....	65.5	19.7	..	93	High	0	13.7
Lowe 514.....	83.1	11.3	..	95	M-low	0	0
Lowe 523.....	72.6	19.8	..	94	M-low	0	0
Lowe 820.....	80.6	12.8	..	94	Medium	1.4	1.4
Lowe 833.....	70.5	19.4	..	89	High	1.6	12.5
Moews CB 60A.....	83.3	15.0	..	93	Medium	0	3.9
Moews CB 69A.....	78.6	17.1	..	96	M-high	0	3.6
Moews CB 70A.....	81.7	13.9	..	96	Medium	.7	0
Moews CB 90A.....	81.0	17.7	..	91	M-high	3.0	10.5
Morton M-12.....	83.5	13.0	..	96	Medium	.7	2.1
Morton M-30.....	75.6	12.2	..	92	M-low	0	0
Morton M-70.....	83.6	13.9	..	94	Medium	0	0
Munson M-13.....	85.9	12.4	..	95	Medium	2.9	0
Munson M-15.....	80.9	14.2	..	93	Medium	0	1.4
Munson M-119.....	81.4	15.6	..	94	Medium	1.5	0
P.A.G. 383.....	77.4	13.5	..	95	M-low	.7	2.2
P.A.G. 403.....	86.4	14.1	..	96	M-low	1.4	0
P.A.G. 407.....	80.0	14.9	..	95	Medium	.7	8.4
P.A.G. 484.....	69.6	22.5	..	91	High	2.3	20.6
P.A.G. 617(W).....	68.4	18.8	..	94	High	2.1	9.9
P.A.G. 620(W).....	85.5	17.6	..	91	M-high	.7	6.7
P.A.G. 631(W).....	84.6	19.0	..	99	Medium	0	8.3
Pioneer 302.....	91.2	16.3	..	95	Medium	1.4	3.5
Pioneer 309.....	85.0	17.6	..	93	Medium	2.1	17.4
Pioneer 6063.....	81.4	14.9	..	95	M-low	0	5.8
Pioneer 6727.....	88.4	15.2	..	99	M-high	.7	8.2
Pioneer 8857.....	78.2	17.4	..	91	M-low	1.5	0
Pioneer 9072.....	84.3	17.7	..	95	M-low	.7	0
Pioneer 9813.....	79.4	17.6	..	95	Medium	3.6	0
Plymouth 37.....	74.2	12.0	..	95	Medium	.7	0
Plymouth 38.....	82.8	15.9	..	97	Medium	0	0
Powers 79.....	80.1	14.4	..	90	Medium	0	0
Stiegelmeier S-372.....	83.1	15.9	..	96	Medium	.7	0
Tiemann T-61.....	75.6	13.2	..	95	Low	0	0
Tiemann T-72.....	76.4	13.5	..	94	M-low	.7	6.5
Tiemann T-76.....	75.4	11.5	..	93	Medium	0	0
Trisler T-33A.....	82.7	14.9	..	94	Medium	0	0
Trisler T-33B.....	82.4	13.6	..	96	M-low	0	0
U.S. 13 (Morton).....	76.2	15.7	..	97	M-high	0	0
Whisnand 810.....	77.4	15.3	..	91	Medium	1.5	0
Whisnand 834.....	82.2	17.4	..	91	M-high	4.3	2.2
Whisnand 851.....	86.1	16.7	..	91	M-high	3.0	2.2
Whisnand 917(W).....	73.5	17.1	..	93	M-high	.7	3.6
Average of all entries..	79.9	15.9	..	94	.....	.9	3.5

a, b See page 22 for these footnotes.

Table 9. — EXTREME SOUTHERN ILLINOIS: Dixon Springs
1950, 1951; Ridgway 1952

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
SUMMARY 1950-1952: Less than 6.0 bushels difference between total yields of any two entries is not significant.					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Illinois 1459 (Station).....	39.6	19.9	95	89	High
Pioneer 302.....	38.7	18.9	97	93	M-high
P.A.G. 620(W).....	38.2	19.3	89	86	High
Bear OK-40B.....	37.9	17.0	91	86	Medium
Illinois 2214(W) (Station).....	36.9	18.9	89	93	M-high
Funk G-711.....	35.4	22.7	84	89	High
Whisnand 917(W).....	32.5	17.8	89	83	M-high
P.A.G. 617(W).....	31.4	18.2	94	84	High
P.A.G. 173.....	31.1	15.9	87	82	Medium
Keystone 111(W).....	30.4	19.8	95	90	M-high
Haudrich 13.....	30.2	16.7	90	88	M-low
Doubet D-41.....	28.9	16.5	84	84	Medium
Whisnand 834.....	28.4	18.6	91	86	M-high
Average of all entries.....	33.8	18.5	90	87	.....
1952 RESULTS: Less than 6.7 bushels difference between total yields of any two entries is not significant.					
Ainsworth X-14A.....	21.5	14.4	95	78	Medium
Ainsworth X-14-3.....	26.8	11.4	98	79	Medium
Bear OK-40B.....	23.8	12.6	98	81	M-high
Bear OK-90.....	28.9	14.2	95	88	M-high
Bear OK-95.....	20.1	14.8	98	92	High
Crow 805.....	32.3	13.6	98	78	Medium
Crow 821.....	26.1	11.8	97	77	Medium
DeKalb 816.....	27.6	12.7	97	85	Medium
DeKalb 876.....	25.4	12.5	97	83	M-high
DeKalb 894.....	20.6	15.5	93	81	Medium
DeKalb 923(W).....	18.9	18.5	93	73	Medium
Doubet D-41.....	19.0	12.9	97	79	M-high
Doubet D-43.....	23.0	13.5	96	82	Medium
Funk G-87.....	22.5	14.0	98	83	Medium
Funk G-134.....	28.3	14.9	97	78	M-high
Funk G-512(W).....	27.5	15.5	97	82	M-high
Funk G-711.....	31.4	20.6	91	90	High
Haudrich 10(W).....	26.2	12.6	96	87	High
Haudrich 13.....	28.8	12.6	97	90	Medium
Haudrich 126.....	27.5	13.5	98	74	Medium
Haudrich 784.....	28.3	18.6	97	85	High
Illinois 1459 (Station).....	22.3	16.9	97	87	High
Illinois 1540 (Station).....	19.3	13.6	98	86	High
Illinois 1570 (Station).....	27.8	11.8	97	87	M-high
Illinois 1772 (Station).....	30.7	17.4	98	85	High
Illinois 1852 (Station).....	33.7	15.1	98	89	High
Illinois 2214(W) (Station).....	27.0	16.1	93	91	M-high
Kentucky 1004B (Lovell).....	25.7	13.4	96	88	High
Keystone 49.....	24.2	11.6	97	77	Medium
Keystone 107(W).....	19.2	18.3	98	80	High
Keystone 111(W).....	19.6	18.5	99	88	High
Keystone 222A.....	28.2	19.4	96	87	High
Lowe 833.....	25.0	15.7	96	79	M-high
Lowe 840A.....	24.3	15.5	96	82	M-high
Lowe 855.....	19.7	16.0	97	68	M-high

(Table is concluded on next page)

Table 9. — EXTREME SOUTHERN ILLINOIS:
Ridgway — concluded

Entry	Total acre yield	Moisture in grain at harvest	Erect plants	Stand	Height of ear
1952 RESULTS — concluded					
	<i>bu.</i>	<i>perct.</i>	<i>perct.</i>	<i>perct.</i>	
Moews CB 60A.....	29.2	13.8	97	82	M-high
Moews CB 69A.....	36.2	15.1	94	88	M-high
Moews CB 70A.....	27.7	11.9	95	92	M-high
Moews CB 90A.....	24.6	17.5	96	82	High
P.A.G. 173.....	27.9	12.5	95	73	High
P.A.G. 407.....	22.5	12.9	98	82	Medium
P.A.G. 484.....	27.0	19.4	98	93	High
P.A.G. 486.....	32.4	22.2	91	85	M-high
P.A.G. 617 (W).....	18.7	14.8	98	80	High
P.A.G. 620 (W).....	28.5	15.7	97	80	High
Pioneer 301B.....	27.8	12.9	98	89	M-low
Pioneer 302.....	32.8	16.4	99	88	High
Pioneer 309.....	24.7	16.0	99	88	Medium
Pioneer 6063.....	26.3	13.4	98	85	M-low
Pioneer 6727.....	40.9	19.0	94	94	Medium
Pioneer 9813.....	20.8	13.6	98	83	High
Stiegelmeier S-13.....	23.5	14.0	98	92	M-high
Super-Crost 660.....	20.0	11.0	98	86	M-low
Super-Crost 880.....	16.0	12.1	97	84	Medium
Tiemann T-72.....	24.3	11.0	98	88	Medium
Tiemann T-76.....	25.9	11.0	98	77	M-high
Tiemann T-78.....	33.5	13.1	97	87	Medium
Whisnand 834.....	21.6	16.2	97	83	High
Whisnand 851.....	22.4	16.8	99	79	M-high
Whisnand 917 (W).....	24.2	14.2	98	79	High
Average of all entries.....	25.7	14.8	97	84	.....

PEDIGREES OF 32 HYBRIDS

Following is a list of open-pedigree hybrids whose performance is shown in this bulletin.

A.E.S. 702... (C103×M14) (Hy2×WF9)	Ill. 1555A... (WF9×Oh51A) (I.224×Oh28)
A.E.S. 805... (C103×Oh45) (WF9×38-11)	Ill. 1559... (M14×Oh28) (WF9×Oh51A)
Ill. 21... (Hy2×187-2) (WF9×38-11)	Ill. 1570... (Hy2×Oh41) (WF9×38-11)
Ill. 101... (M14×WF9) (187-2×W26)	Ill. 1656... (C103×Hy2) (WF9×38-11)
Ill. 1091... (Hy2×WF9) (M14×187-2)	Ill. 1760... (WF9×38-11) (Oh29×Oh45)
Ill. 1091A... (Hy2×187-2) (M14×WF9)	Ill. 1767... (Hy2×Oh45) (WF9×38-11)
Ill. 1180... (M14×WF9) (W8×W32)	Ill. 1772... (Oh7B×Oh29) (T8×Cl.21E)
Ill. 1246... (R61×187-2) (WF9×38-11)	Ill. 1800... (M14×WF9) (A73×A295)
Ill. 1277... (M14×WF9) (I.205×187-2)	Ill. 1813... (C103×Oh45) (Hy2×WF9)
Ill. 1279... (M14×WF9) (A375×187-2)	Ill. 1814... (Hy2×WF9) (M14×Oh45)
Ill. 1280... (M14×WF9) (Os420×187-2)	Ill. 1851... (C103×38-11) (Oh7×Cl.21E)
Ill. 1281... (M14×WF9) (A374×A375)	Ill. 1852... (C103×Cl.21E) (38-11×Oh7)
Ill. 1289... (M14×W22) (WF9×I.205)	Ill. 2214 (W)... (R30×Ky27) (H21×K64)
Ill. 1337... (Hy2×R61) (WF9×38-11)	Ill. 6016... (R78×K4) (R84×38-11)
Ill. 1459... (38-11×K4) (K201×Cl.21E)	Ill. 6021... (R75×R76) (R84×K4)
Ill. 1540... (38-11×Cl.21E) (K155×K201)	U.S. 13... (Hy×L317) (WF9×38-11)

SOIL AND PLANTING RATE ADAPTATION TEST

Nine single-cross hybrids were tested at Urbana for their adaptation to different fertility levels and rate of planting. The single crosses are widely used as parents for commercial double crosses sold in Illinois. All plots were hand-planted and later thinned to the desired stand.

Soils. The two areas used for the test are on the Agronomy south farm. They differ in productivity as a result of long-continued use of different cropping systems. A high level of productivity in the one field has been maintained by a rotation of corn, oats, clover hay, and wheat with a red clover catch crop. The other field has been depleted of fertility by a rotation of corn, corn, corn, and soybeans and is only medium productive. The crop reported was the third crop of corn after soybeans. This medium-productive field was divided, half receiving 70 pounds of nitrogen side-dressed at the second cultivation.

The predominating soil type on both fields is a slightly rolling Flanagan silt loam; both fields have been treated with manure, limestone, and rock phosphate.

Season. A short dry period occurred in August which reduced yields below the average of recent years. Harvest was purposely delayed until late November so that the mature plants might be exposed to the strong winds of late autumn and data concerning broken stalks recorded. Even at this date, however, lodging was insignificant.

Yield. The average yield of all hybrids at all rates on the highly productive soil was 94.4 bushels an acre, which was 38.0 bushels, or 67 percent, more than the yield on the medium-productive soil (56.4 bushels). When 70 pounds of nitrogen was added to the medium-productive soil, an average yield of 79.8 bushels was obtained. This is 23.4 bushels, or 41 percent, more than on the half of this field that did not receive nitrogen.

The highest average yield was obtained on the highly productive field at a planting rate of 16,000 plants to the acre. On the medium-productive field a planting rate of 12,000 plants gave the highest yield, both with and without nitrogen. Again nitrogen proved most effective at the high planting rates.

Table 10. — SOIL AND PLANTING-RATE ADAPTATION TEST:
Central Illinois, Urbana, 1952

Rank	Entry	Yield per acre with varying number of plants per acre						Average yield, all planting rates
		4,000 plants	8,000 plants	12,000 plants	16,000 plants	20,000 plants	24,000 plants	
Highly productive soil ^a								
		<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>bu.</i>	<i>bu.</i>
1	Hy2 × Oh7.....	58.4	89.4	114.3	128.7	129.0	122.6	107.1
2	WF9 × Oh41.....	55.4	91.8	114.5	123.2	120.8	113.8	103.3
3	WF9 × 38-11.....	58.5	96.6	107.8	114.6	108.6	103.4	98.3
4	WF9 × Oh7.....	56.7	92.2	114.7	114.2	110.6	98.4	97.8
5	WF9 × 187-2.....	58.3	88.0	98.7	109.5	104.6	93.3	92.1
6	WF9 × M14.....	50.4	91.4	106.5	105.8	99.9	96.4	91.7
7	WF9 × Oh45.....	53.7	94.7	107.0	103.3	92.3	76.8	88.0
8	WF9 × Hy2.....	53.0	90.9	99.1	102.8	101.0	78.3	87.5
9	WF9 × C103.....	56.7	102.2	103.0	96.0	85.2	58.6	83.6
	Average.....	55.7	93.0	107.3	110.9	105.8	93.5	94.4
Differences necessary for significance: in planting-rate averages, 9.3 bushels; in variety averages, 3.8 bushels								
Medium productive soil ^b								
1	Hy2 × Oh7.....	44.2	74.9	84.3	74.0	81.0	74.0	72.1
2	WF9 × Oh41.....	49.3	69.5	77.7	73.6	54.1	44.0	61.4
3	WF9 × Oh7.....	43.1	69.3	74.2	55.5	60.5	58.8	60.2
4	WF9 × M14.....	44.1	68.7	74.5	50.6	56.7	50.8	57.6
5	WF9 × 38-11.....	49.2	72.3	70.6	54.2	52.7	41.9	56.8
6	WF9 × Hy2.....	44.3	67.5	67.9	59.3	61.0	35.4	55.9
7	WF9 × 187-2.....	46.7	64.5	64.8	43.9	41.2	36.6	49.6
8	WF9 × C103.....	50.0	70.1	58.6	47.2	37.0	19.9	47.1
9	WF9 × Oh45.....	43.4	66.8	59.5	44.9	32.9	32.2	46.6
	Average.....	46.0	69.3	70.2	55.9	53.0	43.7	56.4
Differences necessary for significance: in planting-rate averages, 12.4 bushels; in variety averages, 4.3 bushels								
Medium productive soil with 70 pounds of nitrogen side-dressed at second cultivation ^c								
1	Hy2 × Oh7.....	46.9	82.8	103.4	110.5	123.9	104.7	95.4
2	WF9 × Oh41.....	51.8	83.7	96.5	105.5	92.1	86.3	86.0
3	WF9 × 38-11.....	52.8	84.9	96.6	97.1	93.2	84.6	84.9
4	WF9 × M14.....	48.1	82.0	93.2	88.8	99.9	81.0	82.2
5	WF9 × Oh7.....	45.9	73.6	95.2	94.5	93.8	84.3	81.2
6	WF9 × 187-2.....	46.9	72.5	88.8	84.7	82.3	75.8	75.2
7	WF9 × Hy2.....	46.8	77.9	88.4	84.1	76.4	66.4	73.3
8	WF9 × Oh45.....	48.9	84.0	85.1	78.6	74.8	57.0	71.4
9	WF9 × C103.....	53.1	88.9	80.4	80.9	66.8	43.2	68.9
	Average.....	49.0	81.1	92.0	91.7	89.2	75.9	79.8
Differences necessary for significance: in planting-rate averages, 10.3 bushels; in variety averages, 3.7 bushels								

^a Highly productive soil: mostly Flanagan silt loam, slightly rolling phase. Rotation: corn, oats, clover, wheat (red clover catch crop). Soil treatment: manure, limestone, and rock phosphate.

^b Medium productive soil: mostly Flanagan silt loam, slightly rolling phase. Third year corn after soybeans in a rotation of soybeans, corn, corn, corn. Soil treatment: manure, limestone, and rock phosphate.

^c Same field as b, with nitrogen added.

The various hybrids ranked approximately the same in yield on all fertility levels, but their responses to the different planting rates were quite different. Single-cross Hy2 × Oh7 exhibited the

capacity to yield high at high planting rates. At the opposite extreme was WF9 \times C103, which yielded very high at the low planting rates but showed a rapid decrease in yield as the planting rate increased. (See Fig. 2)

These comparisons indicate that corn yields may be increased by developing hybrids adapted to higher planting rates. On the high-fertility field the hybrid that gave the highest yield was Hy2 \times Oh7; at a rate of 20,000 plants per acre its record was 129 bushels. The average yield of all nine hybrids planted at this rate was 106 bushels, one hybrid giving only 85 bushels.

However, the highest yield produced by any rate of planting was seldom significantly higher than the yield produced by one or two other rates (*see* difference necessary for significance, Table 10). For example, where nitrogen was applied to the medium-productive soil, planting rates of 12, 16, and 20 thousand produced very similar average yields: 92.0, 91.7, and 89.2 bushels an acre respectively. From a practical standpoint growers should lean toward the thinner rate, for there are two possible hazards to planting at thicker rates: (1) increased lodging, and (2) deficient moisture during the growing season. At the thinner rates a



Results with two single crosses planted at the rate of 24,000 plants an acre on highly productive soil. WF9 \times C103, *left*, was an excellent yielder at lower planting rates but couldn't stand the higher rates. Hy2 \times Oh7, on the other hand, proved capable of high yields even at high planting rates. (Fig. 2)

more uniform and higher quality of corn can be picked. Nevertheless on highly fertile soils many growers would do well to increase their planting rate but keep the risks in mind. When there are more than 16,000 plants to the acre, these risks increase.

It is evident that hybrids can be developed that will give extremely good yields at the higher planting rates; but if these hybrids are to be of great practical importance they must also be superior in their resistance to lodging and carry considerable drouth resistance.

SUMMARY

In 1952, 242 hybrids were grown on five test fields in Illinois. Nine single-cross hybrids were grown at Urbana in a rate-of-planting trial on three fields differing in productivity. Fields were planted during the period from May 15 to May 30. Growing conditions were excellent at all locations except Ridgway. There a summer-long drouth greatly reduced growth and yield.

1952 yields. The DeKalb field in northern Illinois had the highest yield, 112.1 bushels an acre. Average yields per acre on the other test fields were: Urbana 105.4, Galesburg 104.1, Brownstown 79.9, and Ridgway 25.7.

The average yield of all hybrids tested was 88.3 bushels. This was 8 percent above the 1951 average. On the three common test fields (DeKalb, Galesburg and Brownstown) the average yield for 1952 was 98.7 bushels, or 18 bushels above the 1951 yield. These three fields were located on the same farms both years and on soil of comparable fertility.

Three-year summaries, 1950-1952. The highest yielding hybrids in the three-year summaries were the following:

Northern Illinois — Bear OK-411, Illinois 1277, Pioneer 347, DeKalb 406, DeKalb 410.

West North-Central — Illinois 21, Ainsworth X-21, Pioneer 313B, Schwenk S-34, Schwenk S-24.

Central — Pioneer 302, U.S. 13, Ainsworth X-14-3, Pioneer 301, Whisnand 804.

Southern — P.A.G. 620(W), Illinois 2214(W), Pioneer 302, Funk G-91, Illinois 1459.

Extreme Southern — Illinois 1459, Pioneer 302, P.A.G. 620(W), Bear OK-40B, Illinois 2214(W).

Lodging. There was little or no lodging in the tests. A few hybrids at Brownstown were broken or leaning.

Moisture. The moisture percent in the grain was far below average. Many hybrids might have been shelled and sold in October directly as No. 2 corn. The quality was excellent at all locations except Ridgway.

Insect damage. At only one location was insect damage serious enough to record. At Brownstown counts of broken and leaning stalks indicated significant differences between hybrids in their reaction to corn borer and rootworm.

Disease damage. Stalk rots and leaf blights were not important in any of the 1952 test fields. The most prevalent ear rot was *Fusarium moniliforme*. The percent of *Diplodia zeae* kernel rot was exceptionally low.

Effect of planting rates and soil productivity. Hybrids ranked approximately the same in yield on all fertility levels, but they responded quite differently to different planting rates. Single-cross Hy2 × Oh7 yielded high at the high planting rates. WF9 × C103, on the other hand, which yielded very high at the low planting rates showed a rapid decrease in yield as the rate was increased.

Hybrids can evidently be developed that will yield extremely well at high planting rates, but these hybrids must also carry superior lodging resistance and considerable drouth resistance to be of practical importance.

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